

Trouble / 情況	Occurrences / 原因	Countermeasures / 對策
Deformation of hole 鑽孔成橢圓	Becoming thread scratch in the hole 形成螺紋刮痕	<ol style="list-style-type: none"> 1. Check for Suitable Guide-Bush 使用適合之鑽套 2. Reduce relief angle 減少間隙角度 3. Check for proper point angle & length of lips 檢查鑽頭尖端角度及兩邊長度是否對稱
	Generation of chattering & vibration 產生顫動、振動	<ol style="list-style-type: none"> 1. Reduce relief angle 減少間隙角度 2. Grind web thinning 腹板削薄 3. Shortening length of drill 縮短鑽頭長度，增加剛性 4. Check for proper drill 檢查鑽頭角度研磨是否正確 5. Check for chuck & collet & socket 檢查夾具與鑽頭接觸情形 6. Pre-centering 預先鑽好中心孔 7. Inspect rigidity of the Drill Machine 提高工作機械的剛性
	Poor chip evacuation 切屑排出不易	<ol style="list-style-type: none"> 1. Increase Feed 加大每週進給量 2. Check for proper helix angle 選擇正確螺旋角 3. Check for proper chip space 加大槽寬比 4. Using Step feed 採用間歇式進給
Deflection of hole 鑽孔傾斜	Drill won't enter work 剛切入時不良	<ol style="list-style-type: none"> 1. Check for Suitable Guide-Bush 使用適合之鑽套 2. Reduce Feed 減少切入時之每週進給量 3. Pre-centering 預先鑽好中心孔
	Insufficient rigidity of drill 鑽頭剛性不良	Shortening length of drill 縮短鑽頭長度，增加剛性
	Unsuitable angle 鑽頭角度不對	Regrinding 再研磨
Excessive wear of cutting edge 外角磨損	Cutting speed too high 切削速度太快	<ol style="list-style-type: none"> 1. Reduce cutting speed 降低切削速度 2. Check Lip Relief 加大間隙角 3. Increase Coolant Flow 充分供給切削液 4. Check for proper material 提高鑽頭之材質

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Poor surface conditions of work piece 孔壁粗糙	Excessive wear of cutting edge 刀刃磨損太大	Regrinding 再研磨
	Too much Feed 進刀速度太大	Decrease feed 降低進刀速度
	Chips clog in hole 切屑阻塞	Add number of exit 增加退刀次數
	the others 其他	1.Thin Web 腹板削薄 2.Check for Proper Guide-bush 使用適合導套 3.Use the highly rigid spindle 採用高剛性主軸
Breakage 切削中鑽頭折斷	Feed too heavy 進給量太大	Decrease feed rate 減少每週進給量
	Chips clog in hole 切屑阻塞	1.Check for proper chip space 加大槽寬比 2.Check for proper helix angle 選擇適當之螺旋角度
	Insufficient rigidity of drill 鑽頭剛性不足	1.Reduce feed 減少每週進給量 2.Shortening length of drill 縮短鑽頭長度，增加剛性 3.Increasing Web thickness 腹板厚度加大
	Unstable in throughout hole drilling 貫穿時安定性不夠（工件不完全被夾住）	1.Reduce feed while throughout drilling 降低貫穿時的每週進給量 2.Check Set Up Rigidity 工作保持固定 3.Use the highly rigid spindle 採用高剛性主軸
Chipping 切屑崩刃	Feed speed too high 進給速度太快	Decrease feed rate 減少每週進給量
	Too High Lip relief Angle 切刃強度不足（過度的間隙角度）	1.Reduce Lip Relief Angle 減少間隙角度 2.Reduce feed in drilling 降低貫空時的每週進給量 3.Check Set up Rigidity 工作保持固定
	During oversize operation 使用在擴孔作業時	1.Properly grind point angle 加大尖端角度 2.Reduce cutting speed 降低切削速度
Hole oversize 孔徑擴大	Point angle is not properly, large chip of one flute; small chip of other flute 尖端角度未對稱或刃大小不一	1.Regrinding 再研磨 2.Thin Web 腹板削薄 3.Properly grind point angle 減少尖端角度 4.Guide-bush 使用鑽套